Mangroves as a source of polyethylene terephthalate (PET) degrading bacteria

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Introduction

- Plastics are crucial and essential materials for society in many sectors and the world has seen increased plastic production and distribution for many decades;
- Thermoplastics and thermosets are the common conventional plastics and Polyethylene terephthalate (PET) is one of the most widely used plastics;
- PET wastes constitute a critical source of pollution to the environment, with important impacts on ecosystems and human health;
- One possibility to address this problem is to identify microorganisms that may be able to naturally degrade the compound for downstream applications.

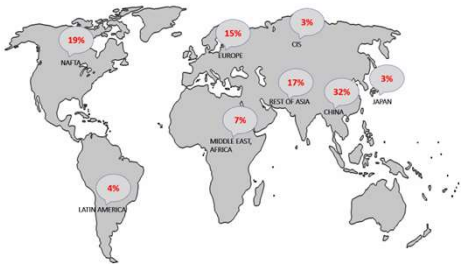
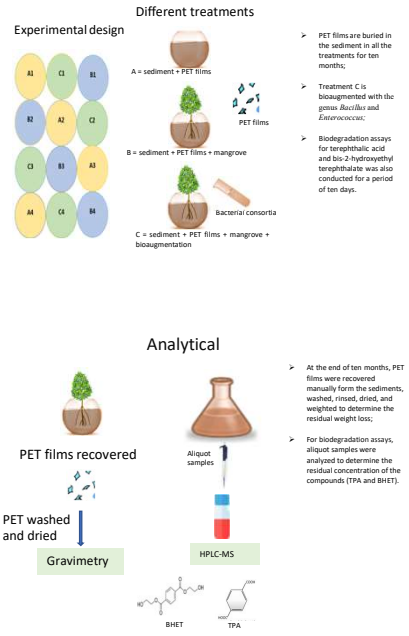


Figure 1: Global production and distribution of plastic materials - 367 Mt (PlasticsEurope,2021)

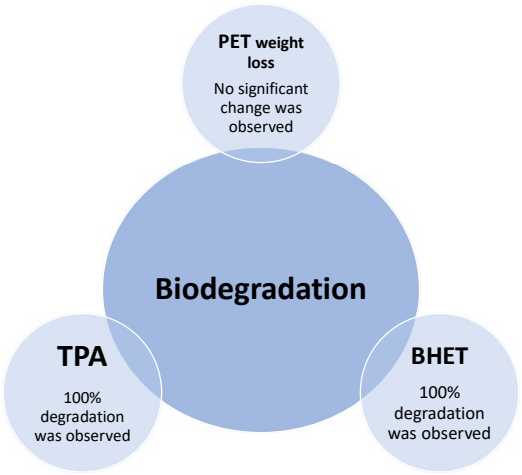
Objectives

- The objective of this research is to test the biodegradation of polyethylene terephthalate (PET) in soil with or without mangrove plants, and with or without bioaugmentation;
- To isolate bacterial consortia from the soil and to perform a biodegradation assay of PET monomer (terephthalic acid) and intermediate (bis-2-hydroxyethyl terephthalate).

Methods



Results



Acknowledgments

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USJ Institute of Science and Environment

efb european federation of biotechnology

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